*BY ORDER OF THE*
*SECRETARY OF THE AIR FORCE*

*AIR FORCE INSTRUCTION 32-1019*
*1 January 2001*

*Civil Engineering*

# *AUTOMATED CIVIL ENGINEER INFORMATION MANAGEMENT*

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFPD 32-10, *Installations and Facilities*. It establishes an organization and related responsibilities for providing oversight, technical review, and functional area expertise for defining, fielding, and training civil engineer data automation tools. This instruction establishes standard systems and guidance applying to use of these systems by all organizations performing civil engineer functions. Any conflict between this instruction and other guidance relating to automated civil engineer software will be resolved in favor of this instruction.

## *SUMMARY OF REVISIONS*

This is the initial publication of AFI 32-1019.

**1. Civil Engineer Data Automation.** The civil engineer uses a variety of automation tools ranging from legacy enterprise information systems to stand-alone tools for specific functional needs running on a wide range of platforms. The Civil Engineer (CE) Automation Modernization Program focuses on improving business processes through a transition of these systems into a single logical database supporting the full range of operational and contingency responsibilities. Geobase is an Air Force initiative to provide installations with the organic capacity to access, maintain, and exploit a single geospatial information infrastructure supporting the mission needs of the Air Force Warfighter Team, of which Installations and Logistics -- and therefore, CE -- are vital parts.

1.1. The Automated Civil Engineer System (ACES) is vital to CE's effectiveness. Geobase must be compatible, complimentary, and interactive with ACES, and use a common logical database structure, where feasible. Sharing data will reduce data entry requirements and eliminate reconciliation efforts for the civil engineer while maintaining Air Force uniformity.

1.2. Standard business rules will be engineered into the database to provide maximum flexibility to major commands (MAJCOM) and installations in collecting and analyzing data. Systems will be engineered to provide “common” look and feel to users. Data collection processes will be reviewed continually to reduce or eliminate maintenance costs.

**2. Responsibilities:**

2.1. The Office of the Civil Engineer (HQ USAF/ILE). HQ USAF/ILE provides leadership, promotes Air Force-wide awareness, sets policy, programs funding, and develops automation guidance for civil engineers. HQ USAF/ILE also:

2.1.1. Charters the Automation Steering Group (ASG) as the executive organization responsible for overseeing all data automation initiatives and approves the ASG Automation Strategic Plan which outlines software, hardware, and communications goals.

2.1.2. Provides liaison with all Air Staff directorates, MAJCOMs, field operating agencies (FOA), and special programs seeking access to civil engineer data to support the Air Force mission.

2.1.3. Chairs the Air Force Chief Information Officer (AFCIO) Geobase Integrated Process Team.

2.2. Headquarters Air Force Civil Engineer Support Agency (HQ AFCESA). HQ AFCESA:

2.2.1. Facilitates the overall organization set forth in this instruction to accomplish ASG objectives.

2.2.2. Serves as the sole civil engineer liaison to Headquarters Standard Systems Group (HQ SSG), responsible for all service level agreements (SLA) with SSG.

2.2.3. Is the primary point of contact for developing, fielding, and maintaining standard CE enterprise information systems. These include (but are not limited to) both legacy and new systems used to support typical daily Base Civil Engineer (BCE) business processes for infrastructure maintenance and repair.

2.2.4. Manages the CE single logical database, working with appropriate agencies to ensure compliance with Air Force and DoD architecture requirements.

2.3. Headquarters Air Force Center for Environmental Excellence (HQ AFCEE). HQ AFCEE:

2.3.1. Is the primary point of contact for developing Computer-Aided Design and Drafting - Geographic or Geospatial Information System (CADD-GIS) standards and other aspects of graphical representation of CE-maintained data.

2.3.2. Provides technical support to both CE and non-CE users of geospatial data and provides acquisition guidance.

2.3.3. Supports HQ AFCESA on geospatial data standard issues which apply to the CE single logical database.

2.4. Major Commands. MAJCOMs coordinate data responsibilities; provide controlled “single storefront” enterprise-wide access to facilities, infrastructure, and environmental data; coordinate implementation; and enforce standards and policies to include training. MAJCOMs also:

2.4.1. Support ASG-declared standard systems.

2.4.2. Monitor data information management systems across their installations and provide recommendations for new or improved standard systems.

2.4.3. Seek economies of scale through consolidation of data information management systems’ requirements.

2.4.4. Provide membership to the ASG.

2.5. Base Civil Engineers. BCEs are responsible for maintaining, protecting, stewarding, and sharing their information assets. During peacetime, the BCE’s automation tools for daily project management and maintaining real property form the foundation for the installation’s geospatial information. BCEs:

2.5.1. Operate ASG-declared standard systems as applicable for their installation.

2.5.1.1. Support the installation's Geobase program development by establishing an accountable focal point for coordinating, programming, implementing, and exploiting geospatial information resources and activities at the installation.

2.5.1.2. Establish accountability by identifying data information resource owners with specific responsibilities for maintenance, protection, and stewardship of their assets.

2.5.1.3. Protect their information from disclosure, loss, misuse, alteration, or destruction of information.

2.5.1.4. Share information assets across and beyond their installation with interested Federal, state, or municipal agencies.

2.5.1.5. Coordinate through their MAJCOM ASG representative any data automation initiatives designed to supplement or replace standard system capabilities or which employ entirely new technologies which may benefit a MAJCOM or the entire Air Force. Procedures are outlined in the *ACES Configuration Management Procedures Guide* published by the Configuration Control Board.

2.5.1.6. Partner with the base communications organization to facilitate both day-to-day operations and new installations of data automation tools.

**3. Organization**. The following organizations manage CE data information system automation.

3.1. Automation Steering Group. The overarching responsibility of the ASG is to provide strategic direction in the management of Air Force CE data automation systems. The ASG approves and funds all Air Force CE information management systems to be implemented across more than one MAJCOM or to interface with Air Force-wide standard systems. All centrally-funded automation initiatives will, by default, be under ASG direction. The Deputy Civil Engineer chairs the ASG. Members include representatives from each MAJCOM, the Air Force Institute of Technology (AFIT), the Air Force Communications and Information Center (AFCIC), the SSG, and FOAs. CE data automation systems consist of software, hardware, and communications infrastructure.

3.1.1. Software to support CE operations may be either commercial-off-the-shelf (COTS), contractor-developed, or developed in-house. Long-term capability and investment value must be evaluated.

3.1.1.1. All new software must employ web-based design to minimize both licensing costs and maintainability.

3.1.1.2. Data in applications must be made available to all users with an approved need to know in a completely seamless manner through the Global Combat Support System-Air Force (GCSS-AF) Integration Framework. Data common to more than one function or application should be shared by those functions and kept in one logical repository.

3.1.2. Hardware requirements must be evaluated and determined for three broad classes: information management systems, infrastructure control systems, and work improvement tools. Hardware must be non-proprietary, able to support a family of software applications, and modular to allow upgrades and integration with other systems. Hardware will be used to capture data using automated methods to the maximum extent possible for the given business process.

3.1.3. Communications infrastructure initiatives, requirements, and goals are important for the CE to understand because of the importance of interconnectivity of automation systems, not only at the installation level, but world-wide. The CE community must partner with the Communications and Information community to define and determine system capabilities. CE requirements range from sending extremely large data files (e.g., geospatial) world-wide, to high-volume daily transactions requiring satisfactory response times.

3.2. Configuration Control Board (CCB). The CCB is chartered as the technical arm of the ASG. The CCB provides tactical direction; collects and defines functional requirements; reviews, recommends, or approves all Air Force CE-wide automation projects; and coordinates with AFIT/CESS, Sheppard Technical Training Center (TTC), Integrated Process Teams (IPT), and SSG to implement training.

3.2.1. Maintaining and controlling configuration of automated systems used by Air Force civil engineers is paramount to mission accomplishment. Processes for configuration control are established in the *ACES Configuration Management Procedures Guide* and maintained to ensure standard, reliable systems which fulfill CE requirements and meet certification parameters established by Air Force Information Technology systems.

3.2.2. Configuration management of CE standard systems will be accomplished through the automation Configuration Control Board. HQ AFCESA Operations Directorate (HQ AFCESA/CEO) will chair the board and membership will be comprised of one voting representative from each MAJCOM and AFIT/CESS. When selecting its representative, each MAJCOM should consider technical expertise and the ability to assume duties for an extended period. HQ AFCEE will have one non-voting technical representative.

3.2.3. Responsibilities of the board are limited to ACES. The CCB Chair will maintain a registry of initiatives submitted for consideration by the CCB. The board will serve as the focal point for all IPTs. The CCB will meet semi-annually (or as required) to review, approve or disapprove, recommend, and prioritize requests for software modifications, enhancements, or development projects to be fielded for CE automation systems. Meetings may be conducted in person, through VTC, or via teleconferencing. The CCB will follow the HQ SSG Systems Engineering Process to the fullest extent possible in managing and controlling configuration of CE enterprise information systems. The CCB will maintain a summary of these procedures in the *Software Engineering Process Guide* for ACES

3.3. Integrated Process Teams. The IPT is a functional working group representing the CE community needs in a specific automation area. The IPT is responsible for ensuring system requirements are defined to include critical user needs, compliance requirements, system integration with non-CE systems, and training requirements. IPTs will regularly survey initiatives in their respective functional areas to ensure the latest technology is considered for civil engineering use, and nominate initiatives for Air Force-wide CE use. IPTs are empowered to seek alternative automation solutions which may include redefining existing business processes. IPT chairs will provide recommendations and progress reports to the CCB. IPTs will be chartered by the CCB, typically on an annual basis. The charter establishes the IPT annual goals and milestones.

**4. Education and Training.** AFIT/CESS is the Office of Primary Responsibility (OPR) and Sheppard TTC is the Office of Collateral Responsibility (OCR) for defining and providing education and training to support automation initiatives. AFIT/CESS will provide cost inputs to the CCB to include in Program Objective Memorandum (POM) estimates supporting the overall automation training requirement. All new automation tools must have a recommended training plan before requesting approval from the ASG to implement.

**5. Systems.** Mandatory CE automated information management systems include:

**Interim Work Information Management System (IWIMS)**
**ACES Real Property Module**
**ACES Project Management Module**
**ACES Housing (including Facilities Management) Module**
**ACES Fire Department Module**

ILE support of the above listed standard systems includes (but it is not limited to) central funding, standardized development in accordance with service and DoD architectures, integration with other government systems, maintenance and help desk support, and training and certification for all users. Guidance for use of standard automated systems is as follows.

5.1. All active duty and Reserve MAJCOM installations will use systems listed in Section 5. Air National Guard (ANG) bases will continue maximizing use of automation and will use standard systems to the maximum extent possible.

5.2. In an A-76 cost comparison process, the winning organization (Most Efficient Organization (MEO) or contractor) is highly encouraged to use standard systems; however, they have the right to include use of an alternate system in their proposal.

5.2.1. Full ILE support will be provided to either in-house or contractor organizations who propose to use the standard systems, including training and technical support.

5.2.2. Limited ILE support will be provided to in-house or contractor organizations who use alternate automated information systems. CE resources are limited and may not be readily available to support unique, stand-alone technical and training solutions. Nonstandard system users must fully budget for replacement of automation, including (but not limited to) 100% of the:

5.2.2.1. Software purchase and/or licensing fees for the alternate system.

5.2.2.2. Life cycle cost of the software for the alternate system.

5.2.2.3. Cost to train employees for the alternate system.

5.2.2.4. Cost to build and maintain a two-way data exchange interface with standard systems and/or the CE single logical database.

5.2.2.5. Cost to meet and maintain the Air Force Command, Control, Communications, Computers, and Intelligence Support Plan (C4ISP), including (but not limited to) security, audit, and Chief Financial Officer Act requirements.

5.2.3. Alternate automation systems must be able to pull data from and push data to the CE database on a weekly basis, as a minimum, or as needed by the Air Force. The government reserves the right to make or not make any changes to the CE single logical database solely for the convenience of these non-standard systems. (This requirement does not apply to ANG installations unless already converted to ACES.)

5.2.4. In-house or contractor organizations who elect to use alternate automated information systems will report the alternate system to the Configuration Control Board through their MAJCOM representative.

5.2.5. In government-owned, contractor-operated plants, the contractor is highly encouraged to use standard systems. It they opt to use an alternate system, criteria in paragraphs 5.2.2 and 5.2.3 must be satisfied.

**6. Standard Database**. To preserve the integrity of Air Force CE data, the ACES database will be a single logical, relational database. Strict compliance with DoD Manual 8320.1-M, *Data Administration Procedures*, is required when interfacing data into/from the ACES database.

**7. Data Dictionary.** Headquarters Standard Systems Group (HQ SSG), upon request through the Configuration Control Board, will provide requestors a current copy of the *Data Dictionary* for standard systems.

MICHAEL E. ZETTLER, Lt General, USAF
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**Attachment 1**

## GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

### *References*

AFPD 32-10, *Installations and Facilities*
DoD 8320.1-M Series, *Data Administration Procedures*, March 1994
*ACES Configuration Management Procedures Guide*
*Software Engineering Process Guide*

### *Additional References*

**Air Force Publications:**
AFPD 37-1, *Air Force Information Management*
AFI 32-1001, *Civil Engineering – Operations Management*
AFI 32-7002, *Environmental Information Management System*
AFI 32-9007, *Managing Air Force Real Property*
AFI 65-601, *Budget Guidance and Procedures - Volume 1*
AFI 65-601, *Budget Management For Operations - Volume 2*
AFSSI 5024, Volume 1, *The Certification and Accreditation (C&A) Process*

**Other:**
Executive Order 12906, *Coordinating Geographic Data Acquisition and Access,* April 1994
Executive Order 13011, *Federal Information Technology*, July 17, 1996
Public Law 105-261 *Information Technology Management Reform Act*, August 8, 1996
Public Law 104-13, *The Paperwork Reduction Act*, May 22, 1995
*Title 5, United States Code*, Section 306
*Title 44, United States Code*, Section 3506(b)
DoD Directive 8000.1, *Defense Information Management (IM) Program*, October 27, 1992 and Air Force Supplement 1, March 30, 1994.
DoD Directive 8320.1, *DoD Data Administration*, September 26, 1991
DoD 8320.1-M-1, *Data Standardization Procedures*, April 1998
DoD 8320.1-M-x, *DoD Enterprise Data Model Development, Approval, And Maintenance Procedures*, November 1994
JP 2-03, *Joint Tactics, Techniques, and Procedures for Geo-Spatial Information and Services Support to Joint Operations*, March 31, 1999
OMB Circular A-130, *Management of Federal Information Resources*. February 8, 1996
*Tri-Service Standards Spatial Data Standards Facility Management Standards*, Tri-Service CADD/GIS Technology Center, Information Technology Laboratory / Waterways Experiment Station, Vicksburg, MS (Current Version)

### *Abbreviations and Acronyms*

**ACES**—Automated Civil Engineer System
**AFCIC**—Air Force Communications and Information Center
**AFCIO**— Air Force Chief Information Officer
**AFIT**—Air Force Institute of Technology
**ANG**—Air National Guard
**ASG**—Automation Steering Group
**CADD-GIS**—Computer-Aided Design and Drafting - Geographic or Geo-spatial Information System
**CE**—Civil Engineering

**CCB**—Configuration Control Board
**CMP**—Configuration Management Procedures
**COTS**—Commercial-Off-The-Shelf
**DoD**—Department of Defense
**FOA**—Field Operating Agency
**GCSS-AF**—Global Combat Support System-Air Force
**HQ AFCEE**—Headquarters Air Force Center for Environmental Excellence
**HQ AFCESA**—Headquarters Air Force Civil Engineer Support Agency
**HQ AFCESA/CEO**—HQ AFCESA Operations Directorate
**HQ SSG**—Headquarters Standard Systems Group
**IPT**—Integrated Process Team
**IWIMS**—Interim Work Information Management System
**MAJCOM**—Major Command
**MEO**—Most Efficient Organization
**OCR**—Office of Collateral Responsibility
**OPR**—Office of Primary Responsibility
**POM**—Program Objective Memorandum
**SEP**—Systems Engineering Process
**SLA**—System Level Agreements
**TTC**—Technical Training Center

***Terms***

**Enterprise Information Systems**—A management information system designed in a client server architecture with a centrally located/managed database serving multiple clients.

**Geobase**—A sharing of Geospatial Data (maps) between the various functional elements on a base or installation.

**Geospatial Data**—Information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the earth. This information may be derived from, among other things, remote sensing, mapping, and surveying technologies. Statistical data may be included in this definition at the discretion of the collecting agency (EO 12906).